Asthma Among Homeless Children in New York City: An Update

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Homeless children in New York City had an extremely high asthma prevalence—40%—in a cross-sectional study at 3 shelters (n=740) during 1998 to 1999. We used the same protocol to summarize subsequent data through December 2002. Asthma prevalence was 33% (n=1636); only 15% of the children previously diagnosed were taking an asthma controller medication. Emergency department use was 59%. These data were used to support a class action lawsuit that was resolved in favor of homeless children with asthma in New York City. (*Am J Public Health.* 2007;97:448–450. doi:10.2105/AJPH.2005.070482)

A recent study found the highest recorded pediatric asthma prevalence—40%—among New York City's homeless children.[1] The findings received considerable press attention, both locally[2,3] and nationally.[4]

This cross-sectional study of children (N=740) of families entering the homeless shelter system was conducted at 3 shelter sites during a 15-month period (June 1998–September 1999). The 1-page, 10-item screening tool, designed by the Children's Health Fund Childhood Asthma Initiative, included questions about asthma symptoms during the past month, whether the child had ever been given a diagnosis of asthma, current medication use, and emergency department use in the preceding 12 months. The item on previous diagnosis was similar to that used in the National Health and Nutrition Examination Survey and the National Health Interview Survey: "Has a doctor ever told you that your child has asthma?" Symptom questions were coded to be consistent with severity staging criteria of the National Heart, Lung, and Blood Institute asthma guidelines.[5]

METHODS

To assess the validity of the screening tool, we compared the children's screening results (n=117) with a structured clinical assessment by a pediatrician or pediatric nurse practitioner within the 3 months following the screening. When we considered all children with a previous diagnosis or having symptoms more than twice per week as positive, sensitivity was 77% and specificity was 92%. Shelter caseworkers were trained extensively to administer the screening as part of the intake for all families newly placed at the sites. Because families entering the New York City shelters are placed without reference to their community of origin, health care needs, and so on, those screened were a representative sample of homeless families.

Only children with symptoms consistent with moderate to severe persistent asthma or a prior physician diagnosis were counted as positive, so asthma prevalence may have been higher than reported. Twenty-seven percent of the children had been given previous diagnoses of asthma; 13% had moderate to severe asthma symptoms and no prior medical diagnosis.[1]

Subsequent to the collection period for data used in the published article, the Children's Health Fund, with staff at the same 3 shelters, conducted an additional 1636 screenings through the end of December 2002, with a protocol consistent with that used in the data collection for the article.

In this brief, we have summarized the results of the shelter-based asthma screenings since September 1999. For trend analysis, we divided these screenings into 3 chronological subsets: October 1999 through December 2000 (n=582), January 2001 through December 2001 (n=649), and January 2002 through December 2002 (n=405). The demographics of the subsets were consistent with the cohort as initially reported, with no statistically significant differences in mean age, gender, or race/ethnicity. The aggregate demographics for these follow-up screenings were: mean age of 76 months; 52% boys and 48% girls; and 66% African American, 30% Latino, and 4% other or unknown. Virtually all of the children were Medicaid-eligible.

TABLE 1—Pediatric Asthma Prevalence of Children Entering the New York City Homeless Shelter System: New York, June 1998–December 2002

	No.	Prevalence, %
June 1998–September 1999	740	40
October 1999–December 2000	582	32
January 2001–December 2001	649	31
January 2002–December 2002	405	35
Arithmetic means	594	35

During the period of the study, the number of homeless families in New York City shelters increased steadily, from 5479 families in December 2000[6] to 6786 families in December 2001[7] and 9097 families (with 16 633 children) in December 2002.[8]

RESULTS

Compared with the initial report, asthma prevalence for homeless children in the New York City shelter system declined but nonetheless remained higher than for any other documented pediatric population. Overall, the prevalence was 33% for the period October 1999 through December 2002. No statistically significant differences in prevalence were found among the 3 chronological subsets. These data are summarized in Table 1.

These results were consistent with national (National Center for Health Statistics)[9] and local (New York City Department of Health)[10] trend data. Our findings also were consistent with those from subsequent asthma screening programs. The results from the Harlem Children's Zone were the most relevant. The Harlem Children's Zone surveyed a community representative of the communities of origin of homeless children in city shelters and found an asthma prevalence of 30.3% (N=1982, screened from 2001 to 2003).[11] Similarly, the Massachusetts Department of Health used school health and primary care provider records (during the 2002–2003 school year) and found asthma rates as

TABLE 2—Children Entering the New York City Homeless Shelter System With Moderate to Severe Asthma Symptoms Who Had Not Been Given a Previous Diagnosis of Asthma: New York, June 1998–December 2002

	No.	Undiagnosed Asthma With Moderate to Severe Symptoms, %
June 1998–September 1999	740	13
October 1999–December 2000	582	14
January 2001–December 2001	649	21
January 2002–December 2002	405	15
Arithmetic means	594	16

TABLE 3—Children Entering the New York City Homeless Shelter System With a Previous Asthma Diagnosis Who Were Taking an Asthma Controller Medication: New York, June 1998–December 2002

	No.	Diagnosed and Taking Controller Medication, %
June 1998–September 1999	202	12
October 1999–December 2000	166	14
January 2001–December 2001	159	17
January 2002–December 2002	119	15
Arithmetic means	162	15

high as 30.8% in elementary and middle schools.[12]

Of the children with moderate to severe asthma symptoms, 16% had not been given a previous diagnosis (compared with 13% in the original study). Among those children with a previous asthma diagnosis, only 15% were taking an appropriate asthma controller medication (compared with 12% in the original study). No statistically significant differences were seen among the 3 chronological subsets. These data are summarized in Tables 2 and 3.

Emergency department use during the preceding 12 months for children identified with asthma increased slightly, from 56% (mean=1.8; range=0–20) to 59% (mean=1.8; range=0–30; not statistically significant) in the subsequent screenings. We were especially concerned about emergency department use by children who had been given a prior asthma diagnosis by a medical professional. For the period October 1999 through December 2002, 65% of the children who had a prior diagnosis of asthma visited an emergency department at least once (mean=2) in the preceding 12 months, and 27% had 3 or more emergency department visits. During the screening period, an upward trend was seen in emergency department use for children who had received a prior diagnosis of asthma, as shown in Table 4.

TABLE 4—Emergency Department Use for Asthma (12 Mo Prior to Screening) by Children Entering the New York City Homeless Shelter System Who Had Received an Asthma Diagnosis: New York, June 1998–December 2002

	No.	Prior Asthma Diagnosis and Emergency Department Use During Past Year, %
June 1998–September 1999	202	54
October 1999–December 2000	166	63
January 2001–December 2001	159	65
January 2002–December 2002	119	69
Arithmetic means	162	63

DISCUSSION

This high level of severity and morbidity is consistent with one of the principal conclusions of the original study—that asthma was undertreated in these medically underserved children. However, the medication question asked in the screening was whether the child was currently taking a controller medication, not whether a health care provider had prescribed a controller medication. The low percentage of diagnosed children whose asthma was appropriately medicated may in part reflect disruptions in care. Nonetheless, our data suggest that despite citywide asthma education efforts, this population of vulnerable children continues to be undertreated.

The initial study data provided supporting evidence for a class action lawsuit brought on behalf of the plaintiffs, which asserted that homeless children with asthma were being denied access to needed medical care. Homeless families are usually placed in shelters distant from their communities of origin, which disrupts continuity of health care. In 1 plaintiff's case, the child's asthma was exacerbated by shelter conditions. In another case, the child's mother was not given information about screening and diagnostic services for asthma that could have prevented an emergency department visit that later became necessary a few days after she had voiced concerns about her child's health.[13,14]

The lawsuit resulted in a stipulation agreement requiring that all families entering the New York City homeless shelter system be provided with information about asthma, including an asthma education guide in English or Spanish. They also were to be informed about health insurance programs for which they may be eligible (although facilitated enrollment was not required) and about health care sites located close to their shelter. Shelter staff were also to receive in-service training about asthma.

This lawsuit illustrates the potential usefulness of applied research data in advocating for the medically underserved. Our more recent data can serve as a baseline to assess improvements in appropriate asthma diagnosis and management and reduced hospital and emergency department use by homeless children with asthma. ■

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Contributors

R. Grant originated this update study, analyzed the data, and wrote the brief. S. Bowen participated in the validation of the screening instrument and surveillance

data management, directed and provided clinical services for patients, and participated in all aspects of the writing of the brief. D.E. McLean originated the asthma surveillance study, designed and validated the instrument, directed implementation of the surveillance study and initial data collection, and participated in all stages of the writing of the brief. D. Berman participated in the advocacy activities associated with this study and in all aspects of the writing of the brief, with a focus on description of the lawsuit. K. Redlener participated in the origination of this update study and in all aspects of the writing of the brief. I. Redlener originated the Childhood Asthma Initiative and participated in the origination of this update study and in all aspects of the writing of the brief.

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Human Participant Protection

The Montefiore Medical Center classified this study as exempt (protocol number 1199810298).

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